

Claims:

1. A process for recovering the components of a munition containing explosive components and non-explosive components, wherein the explosive components are comprised of a nitramine component in a TNT matrix and wherein the non-explosive components are selected from a liner material comprised of asphalt and a sealer material comprised of a wax or polymeric material and which non-explosive components are of a lower density than said explosive components, which process comprises:

a) opening said munition using a high pressure water stream containing abrasive particles to expose said explosive and non-explosive components;

b) removing substantially all of said explosive components and at least a portion of said non-explosive components from the munition by use of a high pressure water stream, which water, explosive components, the abrasive and at least a portion of non-explosive components is referred to as the feed matrix;

c) cooling the feed matrix to a temperature lower than about 80°C in the event the feed matrix is at a temperature greater than about 80°C;

d) conducting the cooled feed matrix to a settling vessel wherein at least a portion of the non-explosive components rise to the surface of the water in said vessel and the abrasive and explosive components sink at a rate to the bottom;

e) drawing-off water containing non-explosive components and passing it to a solids/liquid separation zone wherein the non-explosive solids are separated from the water;

f) recycling at least a portion of the water to settling vessel of step c) above;

g) conducting an aqueous slurry of abrasive and explosive components from the bottom of said settling vessel to an abrasive separation zone wherein the abrasive material is separated from the nitramine and TNT components;

h) collecting the abrasive material;

i) passing the separated nitramine and TNT components to a water displacement zone wherein substantially all of the water is displaced with methanol thereby resulting in a slurry comprised of nitramine solids in TNT in methanol solution;

j) passing the resulting slurry of nitramine solids in TNT in methanol to an extraction/separation zone wherein the nitramine solids are separated from the TNT in methanol solution;

k) passing the TNT in methanol solution to a flash zone wherein methanol is vaporized and wherein TNT crystallizes and settles to the bottom;

l) recovering the vaporized methanol;

m) passing the crystallized TNT to a stripping zone where it is contacted with steam to strip remaining methanol;

n) passing the stripped TNT to a drying zone wherein it is dried to a predetermined level.

2. The process of claim 1 wherein the separation technique for separating the nitramine particles from the TNT/solvent solution is selected from the group consisting of gravity settling and filtration.

3. The process of claim 1 wherein the abrasive material has magnetic properties.

4. The process of claim 3 wherein the abrasive material is a garnet.

5. The process of claim 3 wherein the abrasive separation zone is a magnetic separator.

6. The process of claim 1 wherein the separated nitramine solids are mixed with a mixture of isopropyl alcohol and water after removing the TNT using solvent washes.

7. The process of claim 1 wherein the methanol, after TNT recovery, is condensed and recycled.

8. The process of claim 1 wherein water is continuously introduced at the bottom half of said settling vessel of step d) at a rate lower than the settling rate of the explosive components.

9. The process of claim 1 wherein sealer material is removed from the feed matrix prior to the feed matrix being conducted to said first settling vessel.

10. The process of claim 1 wherein said nitramine are collected from step i), which nitramine solids contain a coating of desensitizing agent, which nitramine solids are contacted with a paraffinic solvent at conditions to dissolve said desensitizing agent there from.

11. The process of claim 10 wherein the desensitizing agent is a natural or synthetic wax and wherein the paraffinic solvent is hexane.

12. The process of claim 1 wherein the collected nitramine solids are collected in a slurry comprised of RDX solids, isopropyl alcohol, and water.

13. A process for recovering nitramines from TNT from a mixture of nitramines and TNT, which process comprises:

- a) passing the mixture of nitramines and TNT to an extraction/separation zone containing an effective amount of methanol to allow substantially all of the TNT to go into solution thereby leaving nitramine solids;

- b) passing the TNT in methanol solution to a flash zone wherein methanol is vaporized and wherein TNT crystallizes and settles to the bottom;

- c) recovering the vaporized methanol;

- d) passing the crystallized TNT to a stripping zone where it is contacted with steam to strip remaining methanol;

- e) passing the stripped TNT to a drying zone wherein it is dried to a predetermined level

- f) recovering the nitramine solids.

14. The process of claim 13 wherein the separation technique for separating the nitramine particles from the TNT/methanol solution is selected from the group consisting of gravity settling and filtration.

15. The process of claim 13 wherein the separated nitramine solids are mixed with a mixture of isopropyl alcohol and water after removing the TNT in methanol solution.

16. The process of claim 13 wherein the methanol, after TNT recovery, is condensed and recycled.

17. The process of claim 13 wherein said nitramine solids contain a coating of desensitizing agent, which nitramine solids are recovered by contacting them with a paraffinic solvent at conditions to dissolve said desensitizing agent there from.

18. The process of claim 17 wherein the desensitizing agent is a natural or synthetic wax and wherein the paraffinic solvent is hexane.
19. The process of claim 13 wherein the collected nitramine solids are collected in a slurry comprised of nitramine solids, isopropyl alcohol, and water.